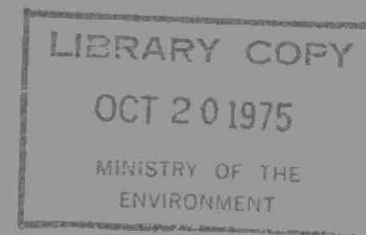


OPERATING SUMMARY

TOWN OF  
**TILLSONBURG**

WATER POLLUTION CONTROL PLANT

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TILLSONBURG

WATER POLLUTION CONTROL PLANT

MINISTRY OF THE ENVIRONMENT

1974 ANNUAL OPERATING SUMMARY

prepared by

Plant Performance Unit

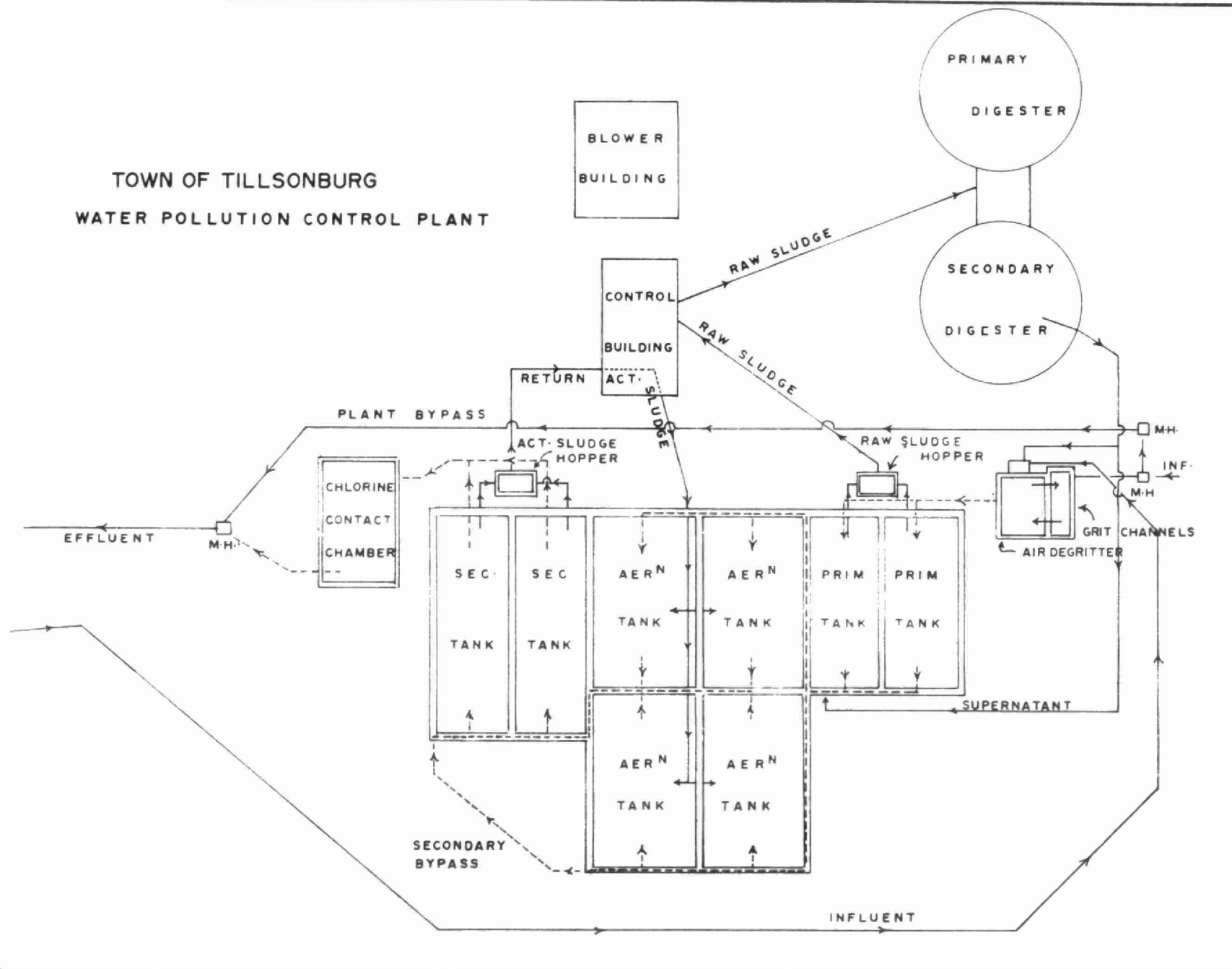
TECHNICAL SERVICES BRANCH

T. Cross, Director

## CONTENTS

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# TOWN OF TILLSONBURG WATER POLLUTION CONTROL PLANT



# DESIGN DATA

Project: Town of Tillsonburg WPCP

Project No.: 1-0137-67

Design Flow: 1.8 MGD

BOD: Raw Sewage - 235 mg/l

Removal 95%

SS: Raw Sewage - 250 mg/l

Removal 95%

## PRIMARY TREATMENT

### AIR DEGRITTER:

Size, 13' x 15' x 10' swd

Volume: 12,160 I. Gal. Detention: 9.7 min.

### PRIMARY SEDIMENTATION:

Two, Size 50.3' x 10' x 8' swd

One, Size 50' x 20' x 8.25' swd

Volume: (total) 102,000 I. Gal.

Detention: 1.3 hours

Overflow Rate: 900 gal/ft<sup>2</sup>/day

## SECONDARY TREATMENT

### AERATION TANKS:

Type: Diffused Air

Size: Four, size 50' x 30' x 13' swd

Volume (total): 487,000 I. Gal.

Detention: (total) 6.5 hours

### SECONDARY SEDIMENTATION:

Size: Two, size 50.3' x 10' x 12.25' swd

One, size 65' x 20' x 12.5' swd

Volume (total): 178,000 I. Gal.

Detention (total) 2.4 hr.

Overflow Rate: 780 gal/ft<sup>2</sup>/day

### CHLORINATION:

Chlorinator: Type: W & T A731

Size: 400 lb/day

### CHLORINE CONTACT CHAMBER:

Size: 21' x 20' x 9.2' swd

Volume: 24,000 I. Gal. Detention: 19 min.

### OUTFALL - to creek

### SLUDGE HANDLING:

Digestion System : Two-Stage

Primary Digester: 45' dia. x 20' swd.

Volume: 36,000 ft<sup>3</sup>

Secondary Digester: 45' dia. x 20' swd

Volume: 36,000 ft<sup>3</sup>

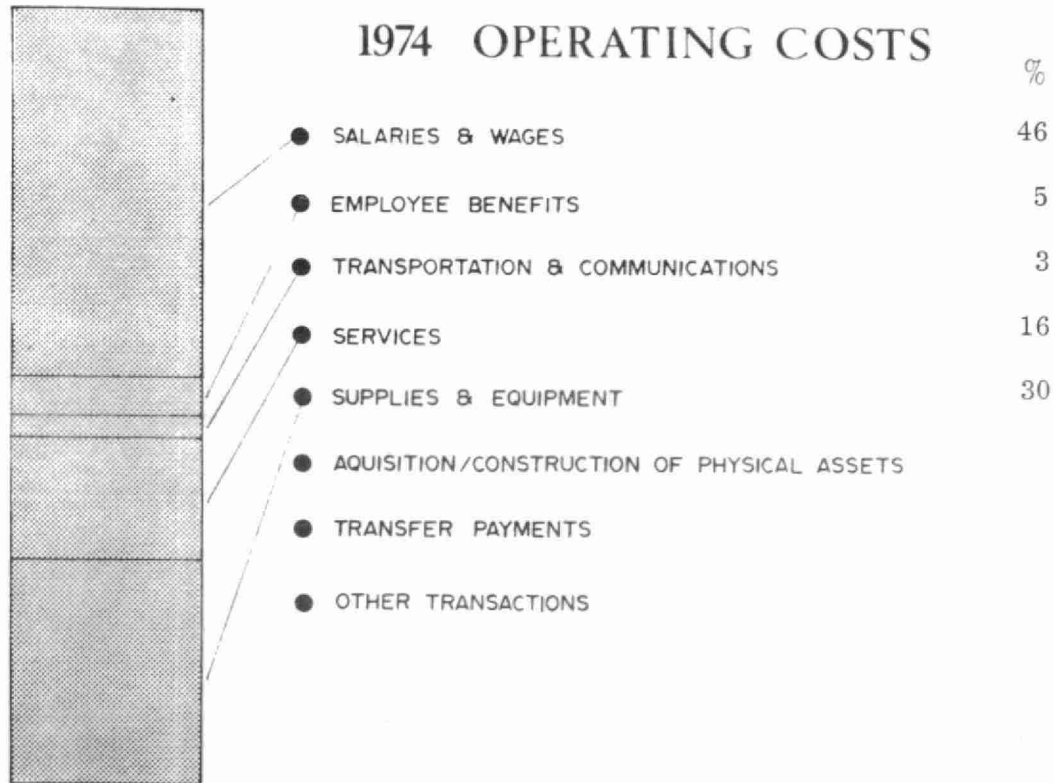
### PUMPING STATION:

John Pound Street Pumping Station

Capacity: 2.7 MGD plus 50% standby

Screening and Comminution.

# ANNUAL COSTS



**YEARLY OPERATING COSTS**

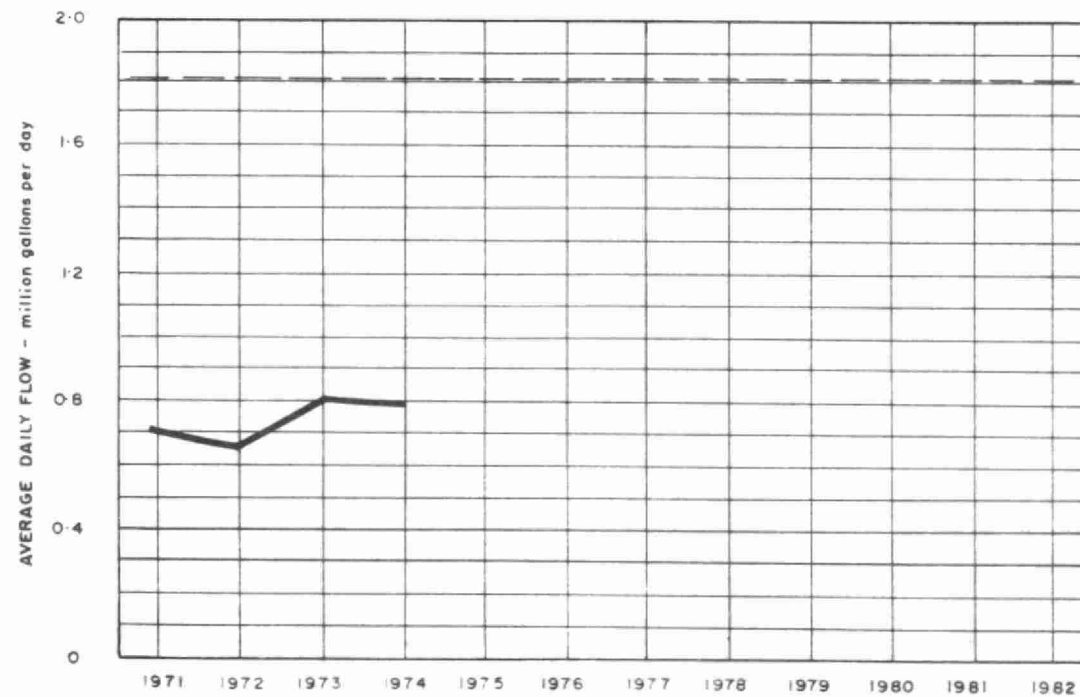
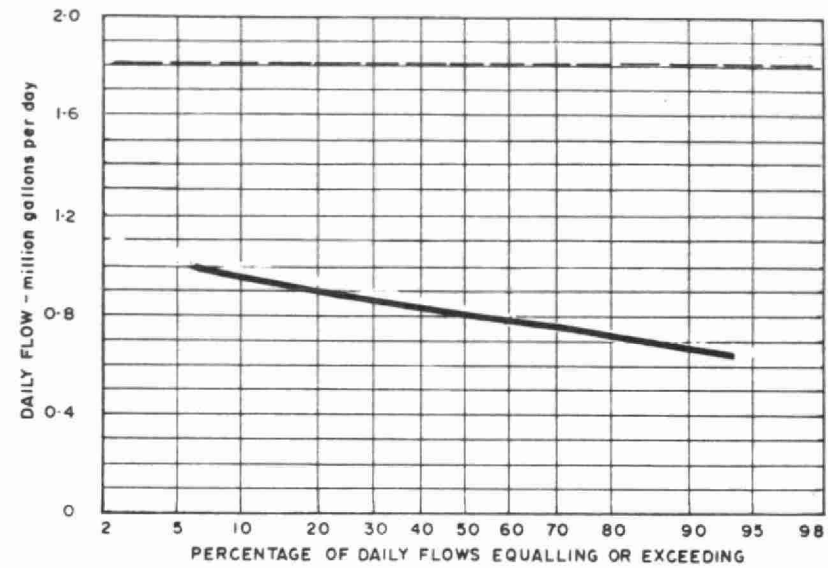
| YEAR | SEWAGE TREATED<br>in million gallons | TOTAL<br>OPERATING COSTS | UNIT COSTS |          |
|------|--------------------------------------|--------------------------|------------|----------|
|      |                                      |                          | \$/M.G.    | ¢/lb BOD |
| 1974 | 291.04                               | 74,525                   | 256        | 24       |

# OPERATING EXPENDITURES

|                                                  |             |          |
|--------------------------------------------------|-------------|----------|
| Regular Staff                                    | \$ 33420    | \$       |
| Casual (Unclassified) Staff                      | 1186        |          |
| TOTAL SALARIES AND WAGES                         |             | 34606    |
| TOTAL EMPLOYEE BENEFITS                          |             | 3429     |
| TOTAL TRANSPORTATION AND COMMUNICATIONS          |             | 2145     |
| Insurance                                        | 871         |          |
| Sludge Haulage                                   | 8493        |          |
| Repairs and Maintenance                          | 2668        |          |
| Other Services                                   | 51          |          |
| TOTAL SERVICES                                   |             | 12083    |
| Machinery and Equipment                          | 4341        |          |
| Chemicals                                        | 2443        |          |
| Utilities                                        | 7831        |          |
| Other Supplies and Equipment                     | 7647        |          |
| TOTAL SUPPLIES AND EQUIPMENT                     |             | 22262    |
| TOTAL AQUISITION/CONSTRUCTION OF PHYSICAL ASSETS |             | -        |
| TOTAL TRANSFER PAYMENTS                          |             | -        |
| OTHER TRANSACTIONS                               |             | -        |
| GRAND TOTAL                                      | GRAND TOTAL | \$ 74525 |



# PROCESS DATA FLOWS

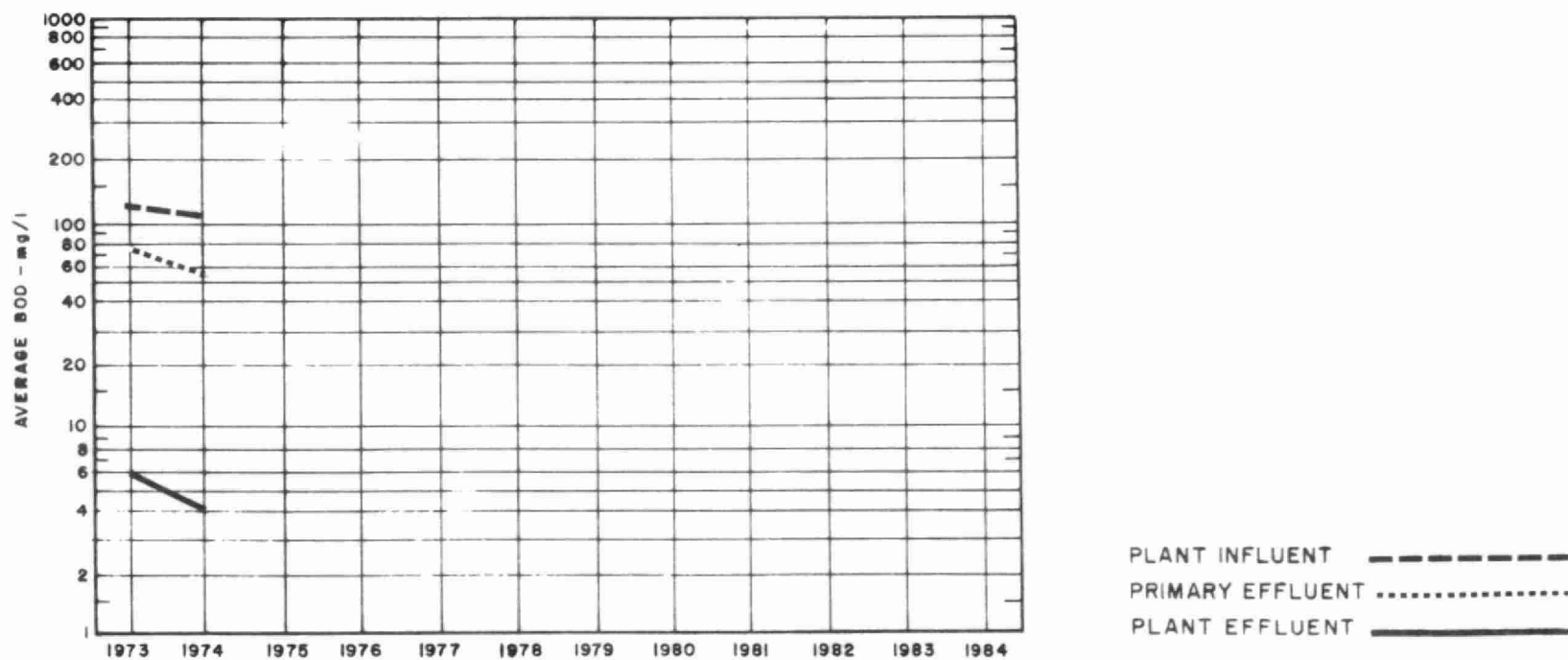
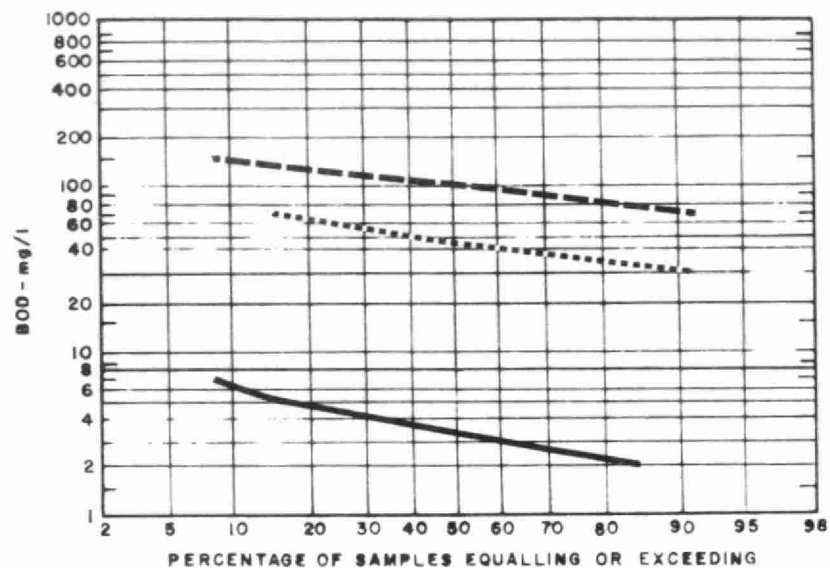


DESIGN CAPACITY - - - - -

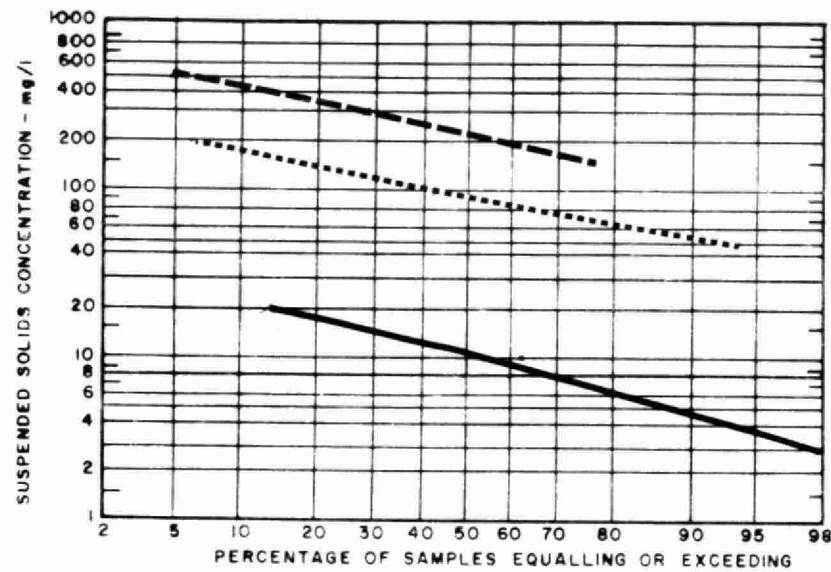
## PLANT PERFORMANCE

| MONTH          | FLOWS           |             |                 | BIOCHEMICAL OXYGEN DEMAND |          |           |                        | SUSPENDED SOLIDS |          |           |                        | PHOSPHORUS |          |
|----------------|-----------------|-------------|-----------------|---------------------------|----------|-----------|------------------------|------------------|----------|-----------|------------------------|------------|----------|
|                | TOTAL FLOW      | AVERAGE DAY | MAXIMUM DAY     | INFLUENT                  | EFFLUENT | REDUCTION |                        | INFLUENT         | EFFLUENT | REDUCTION |                        | INFLUENT   | EFFLUENT |
|                | million gallons | mil. gal    | mgd             | mg/l                      | mg/l     | %         | 10 <sup>3</sup> pounds | mg/l             | mg/l     | %         | 10 <sup>3</sup> pounds | mg/l P     | mg/l P   |
| JAN            | 28.69           | .92         | 1.22            | 140                       | 4        | 97        | 39                     | 272              | 19       | 93        | 76                     | 2.2        | .5       |
| FEB            | 26.30           | .94         | 1.09            | 100                       | 4        | 96        | 25                     | 184              | 13       | 93        | 45                     | 6.8        | .7       |
| MAR            | 28.37           | .92         | 1.10            |                           |          |           |                        | 271              | 13       | 95        | 73                     |            |          |
| APR            | 26.14           | .87         | 1.02            | 80                        | 4        | 95        | 20                     | 204              | 16       | 92        | 49                     | 6.0        | .6       |
| MAY            | 27.91           | .90         | 1.14            | 90                        | 2        | 98        | 25                     | 208              | 10       | 95        | 55                     | 6.8        | 1.2      |
| JUNE           | 24.68           | .82         | .97             | 110                       | 4        | 96        | 26                     | 230              | 11       | 95        | 54                     | 4.8        | .6       |
| JULY           | 22.86           | .74         | .83             | 100                       | 1        | 99        | 23                     | 268              | 12       | 96        | 59                     | 8.2        | .8       |
| AUG            | 22.16           | .72         | .79             | 90                        | 3        | 97        | 19                     | 329              | 8        | 98        | 71                     | 7.8        | .8       |
| SEPT           | 20.36           | .68         | .75             | 130                       | 7        | 95        | 25                     | 291              | 11       | 96        | 57                     | 7.0        | .8       |
| OCT            | 20.58           | .66         | .72             | 170                       | 5        | 97        | 34                     | 250              | 8        | 97        | 49                     | 6.0        | .9       |
| NOV            | 21.57           | .72         | .92             | 80                        | 4        | 95        | 16                     | 276              | 10       | 96        | 57                     | 4.5        | .7       |
| DEC            | 21.42           | .69         | .75             | 110                       | 3        | 97        | 23                     | 201              | 12       | 94        | 40                     | 5.5        | .7       |
| TOTAL          | 291.04          | -           | -               | -                         | -        | -         | 306                    | -                | -        | -         | 690                    | -          | -        |
| AVG.           |                 | .79         | MAXIMUM<br>1.22 | 109                       | 4        | 96        | 25                     | 249              | 12       | 95        | 57                     | 6.0        | .7       |
| No. of Samples | -               | -           | -               | 11                        | 11       | -         | -                      | 62               | 62       | -         | -                      | 11         | 11       |

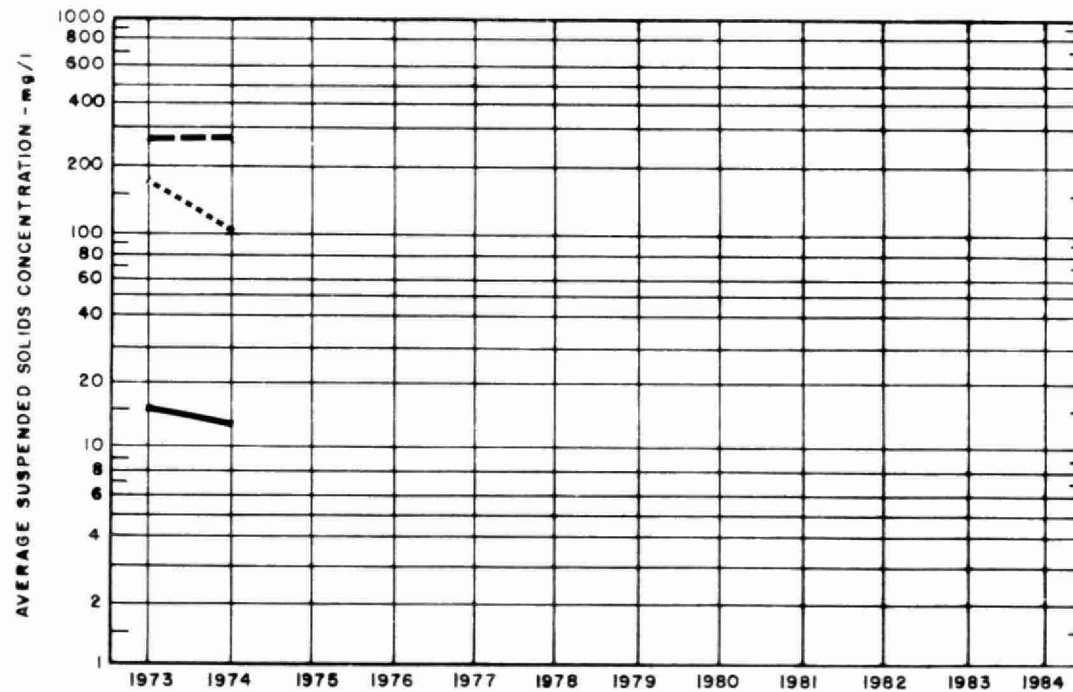
# BIOCHEMICAL OXYGEN DEMAND



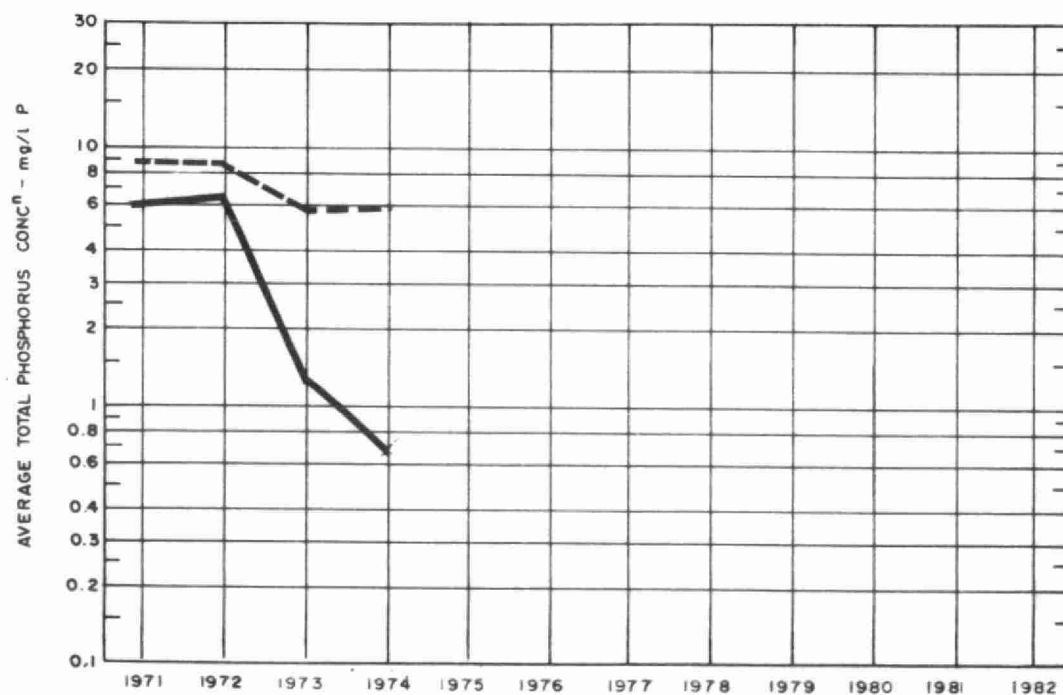
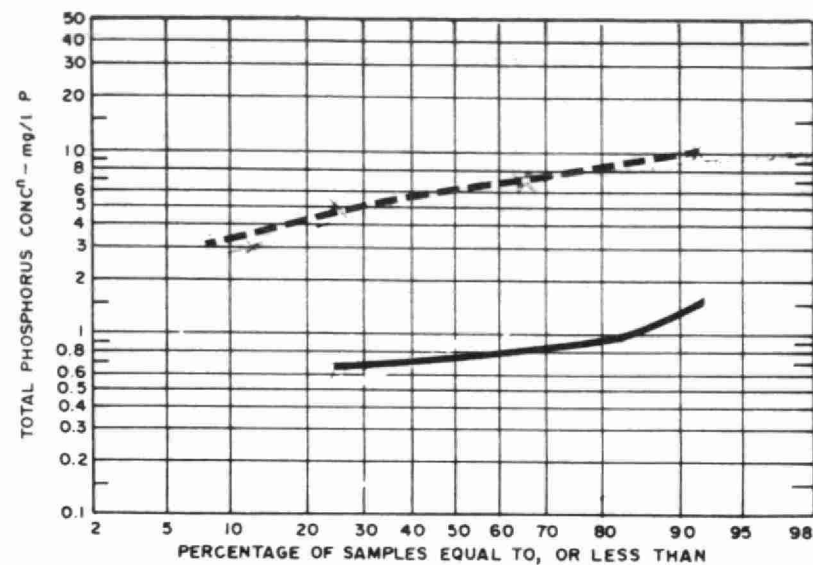
# SUSPENDED SOLIDS



PLANT INFLUENT        
 PRIMARY EFFLUENT      
 PLANT EFFLUENT      



# PHOSPHORUS

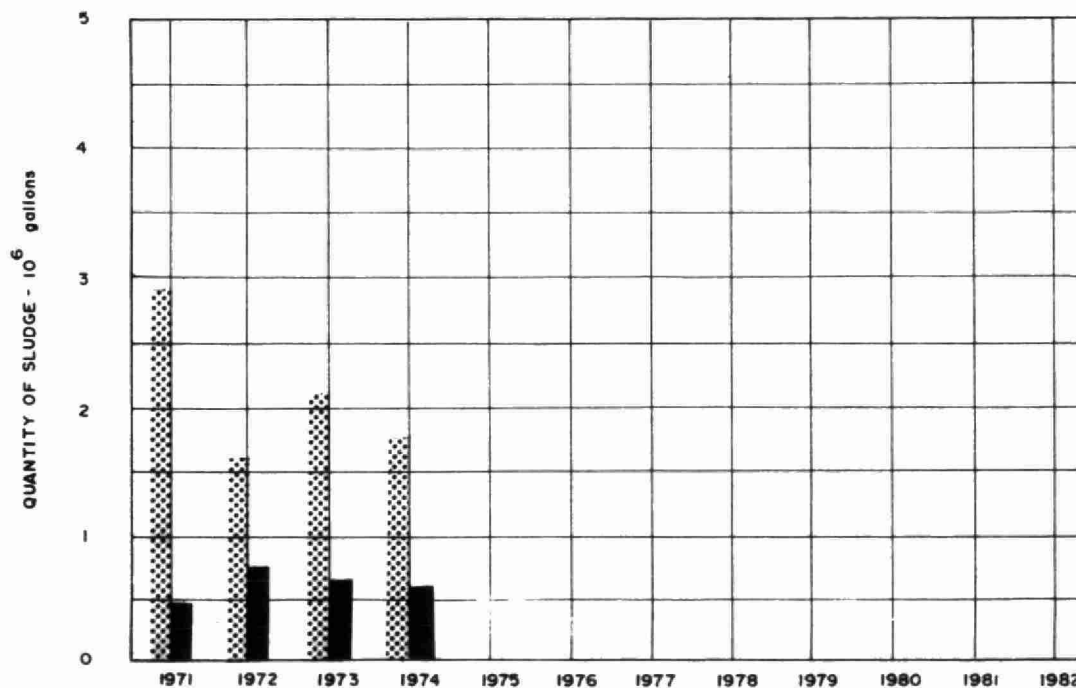
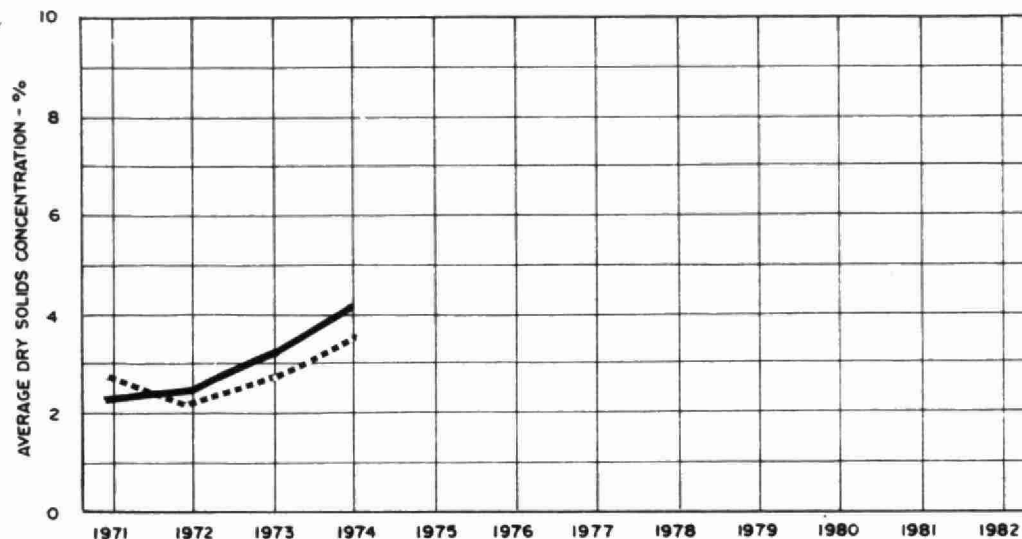


PLANT INFLUENT - - - - -

PLANT EFFLUENT —————

# DIGESTION

RAW SLUDGE .....  
DIGESTED SLUDGE ———



RAW SLUDGE TO DIGESTER ▨  
DIGESTED SLUDGE REMOVED ■

## TREATMENT DATA

| MONTH | GRIT                              | CHLORINATION                   |                      | PRIMARY EFFLUENT |                             | AERATION             |                          |                                       | SLUDGE DIGESTION and DISPOSAL          |                      |                     |                                        |                      |                     |                                |                                 |
|-------|-----------------------------------|--------------------------------|----------------------|------------------|-----------------------------|----------------------|--------------------------|---------------------------------------|----------------------------------------|----------------------|---------------------|----------------------------------------|----------------------|---------------------|--------------------------------|---------------------------------|
|       | QUANTITY<br>REMOVED<br>cubic feet | CL <sub>2</sub> USED<br>pounds | AVG.<br>DOSE<br>mg/l | BOD<br>mg/l      | SUSPENDED<br>SOLIDS<br>mg/l | MLSS<br>CONC<br>mg/l | F/M<br>day <sup>-1</sup> | AIR<br>1000 ft <sup>3</sup><br>lb BOD | RAW SLUDGE                             |                      |                     | DIGESTED SLUDGE                        |                      |                     | SUPER-<br>NATANT<br>T. S.<br>% | AMOUNT<br>HAULED<br>cubic yards |
|       |                                   |                                |                      |                  |                             |                      |                          |                                       | QUANTITY<br>10 <sup>3</sup><br>gallons | TOTAL<br>SOLIDS<br>% | VOL.<br>SOLIDS<br>% | QUANTITY<br>10 <sup>3</sup><br>gallons | TOTAL<br>SOLIDS<br>% | VOL.<br>SOLIDS<br>% |                                |                                 |
| JAN   | 42                                | 652                            | 2.3                  | 70               | 166                         | 2240                 | .05                      | 2.5                                   | 146                                    | 3.7                  | 76                  | 53                                     | 4.3                  | 50                  | .1                             | 312                             |
| FEB   | 18                                | 544                            | 2.1                  | 50               | 98                          | 2410                 | .03                      | 3.5                                   | 120                                    | 3.8                  |                     | 51                                     | 3.8                  |                     | .1                             | 304                             |
| MAR   | 30                                | 559                            | 2.0                  |                  | 76                          | 2500                 | .03                      |                                       | 153                                    | 3.5                  | 69                  | 44                                     | 4.6                  | 48                  | .1                             | 260                             |
| APR   | 57                                | 617                            | 2.4                  | 44               | 89                          | 2470                 | .03                      | 4.4                                   | 152                                    | 3.9                  | 64                  | 51                                     | 4.5                  | 49                  | .1                             | 304                             |
| MAY   | 50                                | 624                            | 2.2                  | 60               | 95                          | 2480                 | .04                      | 2.9                                   | 150                                    | 2.9                  | 61                  | 58                                     | 3.4                  | 50                  | .1                             | 346                             |
| JUNE  | 124                               | 617                            | 2.5                  | 55               | 86                          | 2280                 | .03                      | 3.7                                   | 151                                    | 3.4                  | 65                  | 44                                     | 4.1                  | 51                  | .2                             | 260                             |
| JULY  | 51                                | 624                            | 2.8                  | 32               | 88                          | 2150                 | .02                      | 6.6                                   | 143                                    | 3.3                  | 51                  | 51                                     | 4.5                  | 50                  | .2                             | 305                             |
| AUG   | 46                                | 604                            | 2.7                  | 40               | 85                          | 2290                 | .02                      | 5.7                                   | 130                                    | 4.5                  | 57                  | 49                                     | 4.8                  | 54                  | .2                             | 295                             |
| SEPT  | 27                                | 597                            | 2.9                  | 42               | 104                         | 2250                 | .02                      | 6.4                                   | 143                                    | 3.5                  | 58                  | 54                                     | 4.5                  | 50                  | .1                             | 318                             |
| OCT   | 34                                | 630                            | 3.1                  | 85               | 75                          | 2330                 | .04                      | 2.9                                   | 149                                    | 3.6                  | 35                  | 61                                     | 4.3                  | 50                  | .7                             | 365                             |
| NOV   | 34                                | 579                            | 2.7                  | 48               | 126                         | 2440                 | .02                      | 4.8                                   | 138                                    | 4.8                  | 40                  | 61                                     | 3.7                  | 52                  | .2                             | 360                             |
| DEC   | 24                                | 576                            | 2.7                  | 48               | 98                          | 2100                 | .03                      | 4.9                                   | 158                                    | 3.4                  | 46                  | 86                                     | 3.9                  | 51                  | .2                             | 508                             |
| TOTAL | 537                               | 7223                           | -                    | -                | -                           | -                    | -                        | -                                     | 1733                                   | -                    | -                   | 663                                    | -                    | -                   | -                              | 3937                            |
| AVG.  | 1.8<br>cu. ft/mil gal             | 602                            | 2.5                  | 52               | 100                         | 2100                 | .03                      | 4.4                                   | 144                                    | 3.7                  | 57                  | 55                                     | 4.2                  | 50                  | .2                             | 328                             |

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